

2-23-01

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 U.S. PATENT AND TRADEMARK OFFICE  
 1641

RAW SEQUENCE LISTING  
 PATENT APPLICATION: US/09/676,249A

DATE: 02/09/2001  
 TIME: 12:19:22

Input Set : A:\PC10555A-SEQ-LIST.TXT  
 Output Set: N:\CRF3\02092001\I676249A.raw

4 <110> APPLICANT: King, Kendall W  
 5 Madura, Rebecca A  
 6 Rosey, Everett L  
 8 <120> TITLE OF INVENTION: NUCLEIC ACIDS AND PROTEINS OF THE MYCOPLASMA PNEUMONIAE  
 9 mbp3 GENE AND USES THEREOF  
 11 <130> FILE REFERENCE: PC10555  
 C--> 13 <140> CURRENT APPLICATION NUMBER: US/09/676,249A  
 C--> 14 <141> CURRENT FILING DATE: 2000-09-29  
 15 <150> PRIOR APPLICATION NUMBER: US 60/156,602  
 16 <151> PRIOR FILING DATE: 1999-09-29  
 18 <160> NUMBER OF SEQ ID NOS: 41  
 20 <170> SOFTWARE: PatentIn Ver. 2.1  
 22 <210> SEQ ID NO: 1  
 23 <211> LENGTH: 1692  
 24 <212> TYPE: DNA  
 25 <213> ORGANISM: Mycoplasma hyopneumoniae  
 27 <400> SEQUENCE: 1  
 28 gttttgaat ataatagaaa atgtaaaata aaaattaatt tattaaaaaa taattgaaag 60  
 29 tcatcgata taaaacatt aatttaggaa acaactatga aaaaaaagat aaaaatgaaat 120  
 30 aaatttctg gcttagctt agttttccg ctttcagcaa tgcgcataat ctctgcggaa 180  
 31 tttggata aagaaacaaac taaaagaaat aataatcgccg ataatcaaaa taagccaaatc 240  
 32 actgtatgtct caaaaatttc aggacttagtt aatgaacgaa aatccgaaat tatggccgca 300  
 33 aaagctgtatg caaacaaaca ttttgggcta aataatggca ttgttaaccgc tgggtggaaacg 360  
 34 gtaaatgata attcaatca ccaatcaatgt tgaggccaa ttcaacaact tggcgctctt 420  
 35 actggagggtg agattacttc agtagatagt tcaactgtcg aacttgaagg aaaaatatacg 480  
 36 tcacttgctt atacaacaa aatgttggta gtactttctg gttttcaaca cggtgatgcg 540  
 37 ttcacaagat gattaaaaat ccctgaaaat aagcaattat ttactgaaaa aatattttatc 600  
 38 atactcgaaa ttgactgaaac tgataactgaa aatgtatcc caacaggctcg atatattaat 660  
 39 ttacccataa aactcgaaa agccggatgt cttgcaggat atgcgaatgc ttcccttttg 720  
 40 gcaaaaaat tcccaagtgt tccaaactaa agatcagccaa ttgttatcggt tgggtggatt 780  
 41 tcgcgcgtg taactgtttt tattcgtgtt tatctgcccga gatattaaacg ttgaaatctc 840  
 42 aaaaattctg ataaaaaaac aagataaca actgataaaaa tcgagataaa tcttgggttt 900  
 43 gatgttcaag atacttcaac aaaagaaaaga cttgaacaaa ttgcttcaaa agataaaacct 960  
 44 tcaacactat tagctgtcg tggaccactt actgaaaattt ttcggatata aatcgcaaac 1020  
 45 caaaatgatc gtttatotcat ttgtgttgac accgaccaat cacttgttta tacaaaaaact 1080  
 46 aaaaataaat ttttcacccatc aattttgaaa aatttaggtt actccgtttt cagcgtttt 1140  
 47 agtattttat ataccaaaaa atcaattca agaaatttttgc cccgcttgcg atttggtaaa 1200  
 48 aaaagtgcacccggttatct tggaaataaa gacagggttg tgcattttgc tgatacttct 1260  
 49 ttggaaaggca atgataaaaaa actcgcaactt gaagccattt ctgaaagctaa aaaagaattt 1320  
 50 gaaagaaaaaa ctaagacaaat tccgtccgaa gaagtgcgtaa aactttttaga aattccggaa 1380  
 51 atgcctgata aacaacccatc aatgcacacag gaaagcttag acaaactaat taccgatatt 1440  
 52 aataaaaaattt aatgtaaaaaa aataacaat tttttacat tataatctttttt ttttagagatt 1500  
 53 aattttcttc taatttagttt taattttataa taaaattataa tttaaattttaaa aaaaataaaaa 1560  
 54 atccggacta tttttgttcc ggtttttta tttttgtgtt actattttat ataatgataaa 1620  
 55 atcaggatgttgcataatggaa ttatccaaat ttcgcggaaa atttggcagt tttttatgcctt 1680  
 56 attacaaaat ag 1692  
 59 <210> SEQ ID NO: 2

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60 <211> LENGTH: 451  
 61 <212> TYPE: PRT  
 62 <213> ORGANISM: Mycoplasma hyopneumoniae  
 64 <400> SEQUENCE: 2  
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 66 1 5 10 15  
 68 Phe Pro Leu Ser Ala Ile Ala Thr Ile Ser Ala Gly Cys Trp Asp Lys  
 69 20 25 30  
 71 Glu Thr Thr Lys Glu Glu Lys Ser Ala Asp Asn Gln Asn Lys Gln Ile  
 72 35 40 45  
 74 Thr Asp Val Ser Lys Ile Ser Gly Leu Val Asn Glu Arg Lys Ser Glu  
 75 50 55 60  
 77 Ile Met Ala Ala Lys Ala Asp Ala Asn Lys His Phe Gly Leu Asn Met  
 78 65 70 75 80  
 80 Ala Ile Val Thr Ala Gly Gly Thr Val Asn Asp Asn Ser Phe Asn Gln  
 81 85 90 95  
 83 Ser Ser Trp Glu Ala Ile Gln Gln Leu Gly Ala Leu Thr Gly Gly Glu  
 84 100 105 110  
 86 Ile Thr Ser Val Asp Ser Ser Thr Ala Glu Leu Glu Gly Lys Tyr Ser  
 87 115 120 125  
 89 Ser Leu Ala Asn Thr Asn Lys Asn Val Trp Val Leu Ser Gly Phe Gln  
 90 130 135 140  
 92 His Gly Asp Ala Phe Thr Arg Trp Leu Lys Ile Pro Glu Asn Lys Gln  
 93 145 150 155 160  
 95 Leu Phe Thr Glu Lys Asn Ile Ile Ile Leu Gly Ile Asp Trp Thr Asp  
 96 165 170 175  
 98 Thr Glu Asn Val Ile Pro Thr Gly Arg Tyr Ile Asn Leu Thr Tyr Lys  
 99 180 185 190  
 101 Thr Glu Glu Ala Gly Trp Leu Ala Gly Tyr Ala Asn Ala Ser Phe Leu  
 102 195 200 205  
 104 Ala Lys Lys Phe Pro Ser Asp Pro Thr Lys Arg Ser Ala Ile Val Ile  
 105 210 215 220  
 107 Gly Gly Gly Ile Ser Pro Ala Val Thr Asp Phe Ile Ala Gly Tyr Leu  
 108 225 230 235 240  
 110 Ala Gly Ile Lys Ala Trp Asn Leu Lys Asn Ser Asp Lys Lys Thr Lys  
 111 245 250 255  
 113 Ile Thr Thr Asp Lys Ile Glu Ile Asn Leu Gly Phe Asp Val Gln Asp  
 114 260 265 270  
 116 Thr Ser Thr Lys Glu Arg Leu Glu Gln Ile Ala Ser Lys Asp Lys Pro  
 117 275 280 285  
 119 Ser Thr Leu Leu Ala Val Ala Gly Pro Leu Thr Glu Ile Phe Ser Asp  
 120 290 295 300  
 122 Ile Ile Ala Asn Gln Asn Asp Arg Tyr Leu Ile Gly Val Asp Thr Asp  
 123 305 310 315 320  
 125 Gln Ser Leu Val Tyr Thr Lys Thr Lys Asn Lys Phe Phe Thr Ser Ile  
 126 325 330 335  
 128 Leu Lys Asn Leu Gly Tyr Ser Val Phe Ser Val Leu Ser Asp Leu Tyr  
 129 340 345 350  
 131 Thr Lys Lys Ser Asn Ser Arg Asn Leu Ala Gly Phe Glu Phe Gly Lys

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Output Set: N:\CRF3\02092001\I676249A.raw

194 manipulated for in vitro expression  
 196 <400> SEQUENCE: 4  
 197 Met Trp Asp Lys Glu Thr Thr Lys Glu Glu Lys Ser Ala Asp Asn Gln  
 198 1 5 10 15  
 200 Asn Lys Gln Ile Thr Asp Val Ser Lys Ile Ser Gly Leu Val Asn Glu  
 201 20 25 30  
 203 Arg Lys Ser Glu Ile Met Ala Ala Lys Ala Asp Ala Asn Lys His Phe  
 204 35 40 45  
 206 Gly Leu Asn Met Ala Ile Val Thr Ala Gly Gly Thr Val Asn Asp Asn  
 207 50 55 60  
 209 Ser Phe Asn Gln Ser Gly Trp Glu Ala Ile Gln Gln Leu Gly Ala Leu  
 210 65 70 75 80  
 212 Thr Gly Gly Glu Ile Thr Ser Val Asp Ser Ser Thr Ala Glu Leu Glu  
 213 85 90 95  
 215 Gly Lys Tyr Ser Ser Leu Ala Asn Thr Asn Lys Asn Val Trp Val Leu  
 216 100 105 110  
 218 Ser Gly Phe Gln His Gly Asp Ala Phe Thr Arg Trp Leu Lys Ile Pro  
 219 115 120 125  
 221 Glu Asn Lys Gln Leu Phe Thr Glu Lys Asn Ile Ile Leu Gly Ile  
 222 130 135 140  
 224 Asp Ile Asp Thr Thr Glu Asn Val Ile Pro Thr Gly Arg Tyr Ile Asn  
 225 145 150 155 160  
 227 Leu Thr Tyr Lys Thr Glu Glu Ala Gly Trp Leu Ala Gly Tyr Ala Asn  
 228 165 170 175  
 230 Ala Ser Phe Leu Ala Lys Lys Phe Pro Ser Asp Pro Thr Lys Arg Ser  
 231 180 185 190  
 233 Ala Ile Val Ile Gly Gly Ile Ser Pro Ala Val Thr Asp Phe Ile  
 234 195 200 205  
 236 Ala Gly Tyr Leu Ala Gly Ile Lys Ala Trp Asn Leu Lys Asn Ser Asp  
 237 210 215 220  
 239 Lys Lys Thr Lys Ile Thr Thr Asp Lys Ile Glu Ile Asn Leu Gly Phe  
 240 225 230 235 240  
 242 Asp Val Gln Asp Thr Ser Thr Lys Glu Arg Leu Glu Gln Ile Ala Ser  
 243 245 250 255  
 245 Lys Asp Lys Pro Ser Thr Leu Leu Ala Val Ala Gly Pro Leu Thr Glu  
 246 260 265 270  
 248 Ile Phe Ser Asp Ile Ile Ala Asn Gln Asn Asp Arg Tyr Leu Ile Gly  
 249 275 280 285  
 251 Val Asp Thr Asp Gln Ser Leu Val Tyr Thr Lys Thr Lys Asn Lys Phe  
 252 290 295 300  
 254 Phe Thr Ser Ile Leu Lys Asn Leu Gly Tyr Ser Val Phe Ser Val Leu  
 255 305 310 315 320  
 257 Ser Asp Leu Tyr Thr Lys Lys Ser Asn Ser Arg Asn Leu Ala Gly Phe  
 258 325 330 335  
 260 Glu Phe Gly Lys Lys Ser Ala Thr Val Tyr Leu Gly Ile Lys Asp Arg  
 261 340 345 350  
 263 Phe Val Asp Ile Ala Asp Thr Ser Leu Glu Gly Asn Asp Lys Lys Leu  
 264 355 360 365  
 266 Ala Thr Glu Ala Ile Ser Glu Ala Lys Lys Glu Phe Glu Glu Lys Thr

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267      370          375          380
269 Lys Thr Ile Pro Ala Glu Glu Val Arg Lys Thr Leu Glu Ile Pro Glu
270 385          390          395          400
272 Met Pro Asp Lys Gln Pro Asp Lys Gln Gln Glu Ser Leu Asp Lys Leu
273          405          410          415
275 Ile Thr Asp Ile Asn Asn Leu
276          420
279 <210> SEQ ID NO: 5
280 <211> LENGTH: 602
281 <212> TYPE: DNA
282 <213> ORGANISM: Mycoplasma hyopneumoniae
284 <400> SEQUENCE: 5
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286 aacgcatcac cgtgtgaaa accagaaaatc actcaaacat ttttgttggt attagcaagt 120
287 gagctatatt ttcccttcaag ttccgcgtt gaactatcta ctgaaatgtt ctcacccca 180
288 gtaagagcgc caagttgtt aattgcctt caacttgatt ggttaatgtt attatcattt 240
289 accgttccac cagcgttac aattgcata tttagccaa aatgtttgtt tgcatcagct 300
290 tttgcggca taatttggta ttttcgttca ttaactgtc ctgaaatgtt tgagacatca 360
291 gtgatgtgtt tattttgtt atccgcgtat ttttctttagttt tttatccaa 420
292 catccggcag agattgtcgc gattgtgaa agcggaaaaa ctaagcctaa gcgaagaat 480
293 ttatatttcaattt ttatctttttt ttatcttgcattt ttaattgtttt taatttacat 540
294 gactttcaat tatttttaa taaaatttattt ttatatttac attttcttattt atattcaaaa 600
295 ac          602
298 <210> SEQ ID NO: 6
299 <211> LENGTH: 200
300 <212> TYPE: PRT
301 <213> ORGANISM: Mycoplasma hyopneumoniae
303 <400> SEQUENCE: 6
304 Met Ile Ile Phe Ser Val Asn Asn Cys Leu Phe Ser Gly Ile Phe
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307 Asn His Leu Val Asn Ala Ser Pro Cys Trp Lys Pro Glu Ser Thr Gln
308          20          25          30
310 Thr Phe Leu Leu Val Leu Ala Ser Glu Leu Tyr Phe Pro Ser Ser Ser
311          35          40          45
313 Ala Val Glu Leu Ser Thr Glu Val Ile Ser Pro Pro Val Arg Ala Pro
314          50          55          60
316 Ser Cys Trp Ile Ala Ser Gln Leu Asp Trp Leu Asn Glu Leu Ser Phe
317 65          70          75          80
319 Thr Val Pro Pro Ala Val Thr Ile Ala Ile Phe Ser Pro Lys Cys Leu
320          85          90          95
322 Phe Ala Ser Ala Phe Ala Ala Ile Ile Ser Asp Phe Arg Ser Leu Thr
323          100          105          110
325 Ser Pro Glu Ile Phe Glu Thr Ser Val Ile Cys Leu Phe Trp Leu Ser
326          115          120          125
328 Ala Asp Phe Ser Ser Leu Val Val Ser Leu Ser Gln His Pro Ala Glu
329          130          135          140
331 Ile Val Ala Ile Ala Glu Ser Gly Lys Thr Lys Pro Lys Pro Arg Asn
332 145          150          155          160
334 Leu Phe His Ile Phe Phe Ile Val Val Leu Leu Ile Asn Cys

```

FYI

**Please Note:**

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

VERIFICATION SUMMARY

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Input Set : A:\PC1055A-SEQ-LIST.TXT  
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L:13 M:270 C: Current Application Number differs, Replaced Application Number  
L:14 M:271 C: Current Filing Date differs, Replaced Current Filing Date  
L:355 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:7  
L:396 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:10  
L:402 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:10  
L:424 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:12  
L:430 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:12  
L:452 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:14  
L:458 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:14